

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

LISTING OF CLAIMS:

Claim 1 (Original). An isolated polynucleotide molecule derivable from a polynucleotide encoding a polypeptide having L-sorbose dehydrogenase activity comprising a partial nucleotide sequence of at least 20 consecutive nucleotides of SEQ ID NO:1.

Claim 2 (Original). The isolated polynucleotide molecule according to claim 1, wherein the partial nucleotide sequence of SEQ ID NO:1 has at least 50 consecutive nucleotides.

Claim 3 (Original). The isolated polynucleotide molecule according to claim 1, wherein the partial nucleotide sequence of SEQ ID NO:1 has at least 100 consecutive nucleotides.

Claim 4 (Original). The isolated polynucleotide according to claim 3 wherein the partial nucleotide sequence is derivable from a polynucleotide sequence having a homology of at least 60% with SEQ ID NO:1 whereby at least 100 consecutive nucleotides are compared.

Claim 5 (Currently amended). The isolated polynucleotide molecule according to claim 1 ~~any one of claims 1 to 4~~, whereby the partial nucleotide sequence

is derivable from a polynucleotide sequence having a homology of at least 80% with
SEQ ID NO:1.

Claim 6 (Currently amended). The isolated polynucleotide molecule
according to claim 1 ~~any one of claims 1 to 5~~, whereby the partial nucleotide sequence
is derivable from a polynucleotide sequence having a homology of at least 90% with
SEQ ID NO:1.

Claim 7 (Currently amended). The isolated polynucleotide molecule
according to claim 1 ~~any one of claims 1 to 6~~, which is selected from the group
consisting of SEQ NOs:1, 11, 13, 15, 17, 19, 21 and 26.

Claim 8 (Original). The isolated polynucleotide molecule according to claim 1,
wherein the partial nucleotide sequence is selected from the group consisting of SEQ ID
NOs:5, 6, 7, 8, 9, 10, 23, and 24.

Claim 9 (Currently amended). A polypeptide encoded by a polynucleotide
according to claim 1 ~~any of the preceding claims~~.

Claim 10 (Original). The polypeptide according to claim 9, comprising a partial
amino acid sequence of at least 25 consecutive amino acids selected from the group
consisting of SEQ ID NO:2, 12, 14, 16, 18, 20, 22, and 27.

Claim 11 (Currently amended). The polypeptide according to claim 9 ~~or 10~~, wherein the partial amino acid sequence has at least 35 consecutive amino acids.

Claim 12 (Currently amended). A recombinant DNA molecule for expression of a polypeptide having L-sorbose dehydrogenase activity, said recombinant DNA molecule comprising a polynucleotide according to claim 1 ~~any one of claims 1 to 7~~.

Claim 13 (Original). An expression vector comprising the recombinant DNA molecule according to claim 12.

Claim 14 (Currently amended). A recombinant organism which has been transformed with the recombinant DNA according to claim 12 ~~and/or the expression vector of claim 13~~.

Claim 15 (Original). The recombinant organism according to claim 14, wherein the recombinant DNA is at least partially integrated into the chromosome.

Claim 16 (Currently amended). The recombinant organism according to claim 14 ~~or 15~~, which is selected from the group consisting of fungal, plant, animal and bacterial cells.

Claim 17 (Original). The recombinant organism according to claim 16, wherein the organism is a bacterium of a genus selected from the group consisting of *Gluconobacter*, *Acetobacter*, *Pseudomonas* and *Escherichia*.

Claim 18 (Currently amended). A process for the production of L-ascorbic acid from a substrate selected from D-sorbitol, L-sorbose and L-sorbose comprising:

- (a) propagating a recombinant organism of claim 14 ~~any one of claims 14 to 17~~ in an appropriate culture medium and
- (b) recovering and separating L-ascorbic acid from said culture medium.

Claim 19 (Original). A process for the production of L-ascorbic acid from a substrate selected from D-sorbitol, L-sorbose and L-sorbose comprising:

- (a) propagating a non-recombinant microorganism encoding a polypeptide according to claim 9 in an appropriate culture medium and
- (b) recovering and separating L-ascorbic acid from said culture medium.

Claim 20 (Original). A process for the production of L-ascorbic acid comprising contacting a substrate selected from D-sorbitol, L-sorbose and L-sorbose with the isolated polypeptide of claim 9.

Claim 21 (Currently amended). A process for the production of L-ascorbic acid from a substrate selected from D-sorbitol, L-sorbose and L-sorbose comprising:

- (a) propagating a recombinant of organism according to claim 14 ~~any one of claims 14 to 17 or a non-recombinant microorganism encoding the polypeptide according to claim 9~~ in an appropriate culture medium,

- (b) isolating and purifying the L-sorbose dehydrogenase,
- (c) incubating the substrate in the presence of the L-sorbose dehydrogenase of (b), and
- (d) recovering and separating L-ascorbic acid from the reaction mixture.

Claim 22 (Currently amended). A process for the production of L-sorbose dehydrogenase, wherein a recombinant organism comprising a polynucleotide according to claim 1 ~~any one of claims 1 to 7~~ is propagated in an appropriate culture medium, the cells are disrupted and the L-sorbose dehydrogenase is isolated.

Claim 23 (Currently amended). A process for the production of L-sorbose dehydrogenase, wherein a non-recombinant microorganism comprising a polynucleotide according to claim 1 ~~any one of claims 1 to 7~~ is propagated in an appropriate culture medium, the cells are disrupted and the L-sorbose dehydrogenase is isolated.

Claim 24 (Original). A process for the production of vitamin C comprising converting a substrate into vitamin C in a medium comprising resting cells of a microorganism.

Claim 25 (Currently amended). The process according to claim 24 ~~25~~ comprising the steps of:

- (a) culturing the microorganism under conditions which enable growth,
- (b) changing of the conditions such that the growth rate of the microorganism is reduced leading to resting cells; and
- (c) production of vitamin C from the substrate using the resting cells of (b).

Claim 26 (Original). The process according to claim 25 wherein steps (a) and (c) are performed in 2 or more separate vessels.

Claim 27 (Original). The process according to claim 25 wherein step (a) and (c) are not separated by any washing and/or isolation step.

Claim 28 (Currently amended). The process according to claim 24 ~~any one of claims 24 to 27~~ wherein the microorganism is grown in batch, fed-batch, continuous, or semi-continuous mode.

Claim 29 (Original). The process according to claim 25 wherein step (c) is performed in batch, fed-batch, continuous, or semi-continuous mode.

Claim 30 (Currently amended). The process according to claim 24 ~~any one of claims 24 to 29~~ wherein the density of the resting cells in the medium measured as OD at 600 nm is at least 10.

Claim 31 (Currently amended). The process according to claim 24 ~~any one of claims 24 to 30~~ wherein the yield of produced vitamin C is at least 1.8 g/l.

Claim 32 (Currently amended). The process according to claim 24 ~~any one of claims 24 to 31~~ wherein the microorganism is selected from the group consisting of yeast, algae, and bacteria.

Claim 33 (Currently amended). The process according to claim 24 ~~any one of claims 24 to 32~~ wherein the microorganism is selected from the group consisting of *Candida*, *Saccharomyces*, *Zygosaccharomyces*, *Scyzosaccharomyces*, *Kluyveromyces*, *Chlorella*, *Gluconobacter*, *Acetobacter aceti*, *Pantoea*, *Cryptococcus*, *Pseudomonas* and *Escherichia*.

Claim 34 (Currently amended). The process according to claim 24 ~~any one of claims 24 to 33~~ wherein the substrate is selected from the group consisting of D-glucose, D-sorbitol, L-sorbose, L-sorbose, 2-keto-L-gulonate, D-gluconate, 2-keto-D-gluconate and 2,5-diketo-gluconate.

Claim 35 (Currently amended). The process according to claim 24 ~~any one of claims 24 to 34~~ using a microorganism capable of producing both vitamin C and 2-keto-L-gulonic acid from a substrate and wherein the ratio between the concentration of vitamin C and 2-KGA is more than 0.1.

Claim 36 (Currently amended). The process according to claim 18 ~~any one of claims 18 to 21 or 24 to 35~~ further comprising isolation of vitamin C from the medium and optionally one or more purification steps.

Claim 37 (Original). The process according to claim 36 wherein all purification steps are performed in an aqueous environment.

Claim 38 (New). The process according to claim 18 further comprising separation of vitamin C from components in the medium using electrodialysis.

Claim 39 (New). The process according to claim 24 further comprising separation of vitamin C from components in the medium using electrodialysis.

Claim 40 (New). A recombinant organism which has been transformed with the expression vector of claim 13.

Claim 41 (New). A process for the production of L-ascorbic acid from a substrate selected from D-sorbitol, L-sorbose and L-sorbose comprising:

- (a) propagating a non-recombinant microorganism encoding the polypeptide according to claim 9 in an appropriate culture medium,
- (b) isolating and purifying the L-sorbose dehydrogenase,
- (c) incubating the substrate in the presence of the L-sorbose dehydrogenase of (b), and

(d) recovering and separating L-ascorbic acid from the reaction mixture.

Claim 42 (New). The process according to claim 24 further comprising isolation of vitamin C from the medium and optionally one or more purification steps.